



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/784,404

02/23/2004

Colin P. Crowley

77051

1820

48940

7590

11/13/2006

FITCH EVEN TABIN & FLANNERY
120 S. LASALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER

ARNOLD, ERNST V

ART UNIT

PAPER NUMBER

1616

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/784,404	Applicant(s) CROWLEY ET AL.	
	Examiner Ernst V. Arnold	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/2/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 9-22 have been cancelled. Claims 1-8 are pending in the application.

Acknowledgement is made of Applicant's remarks filed on 8/16/06. Applicant's arguments have been carefully considered by the Examiner. Applicant's amendment has necessitated a new ground of rejection. This action is final.

Withdrawn objections/rejections:

Claims 6 and 7 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant amended the claims to overcome the rejections and the rejection is withdrawn.

Claims 1-4 were rejected under 35 U.S.C. 102(b) as being anticipated by Mani (US 6,221,225). Applicant asserted that Mani do not teach or suggest an electrolyzed composition having a total anion or total cation concentration between about 0.002 N to less than 1.0 N because Mani teach a range of 1-6 N. The Examiner withdraws the rejection over Mani for this reason.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not

Art Unit: 1616

described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 introduces new matter as the claims recites the limitation "...total cation concentration between about 0.002 to less than 1.0 N..." There is no support in the specification for this concentration range. The limitation of "...total cation concentration between about 0.002 to less than 1.0 N..." was not described in the specification as filed, and person skilled in the art would not recognize in the applicant's disclosure a description of the invention as presently claimed. The specification discloses that the *aqueous feed solution* to be treated with electrodialysis in the concentration range of about 0.002 N to about 1.0 N on page 6, line 6, but does not describe the narrower range of about 0.002 to less than 1.0 N. However, the specification only discloses an after electrodialyzed solution having a total anion or total cation concentration of less than about 1.0 N (Page 8, lines 1-3). There is no guidance in the specification to select the range "...total cation concentration between about 0.002 to less than 1.0 N..." for the electrodialyzed solution. Therefore, it is the Examiner's position that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of filing of the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 8 remain/are rejected under 35 U.S.C. 102(b) as being anticipated by Quoc et al. (J. Agric. Food Chem. 2000, 48, 2160-2166).

Quoc et al. disclose methods of electrodialysis with bipolar membranes, sandwiched between cationic and anionic membranes, of apple juice (Abstract; and pages 2160-2161, materials and methods, Figure 1). Figure 1 also shows that in the case of cationic membranes, 0.25 M KCl is used and, in the case of anionic membranes, 0.1 M HCl is used. The acidified juice had a total cation concentration of: potassium 774 mg/L (0.019 M); calcium 22 mg/L (0.005 M); and magnesium 35 mg/L (0.001 M) (Page 2164, Table 3). The current density, 20 mA/cm² or 40 mA/cm², was selected not to exceed 2 V per compartment and ranged from 1.5 to 1.8 V (Page 2161, left column, second paragraph and page 2163, right column, second paragraph). Free chlorine was not present. A pH change of at least 2, from between 3.5 and 4.0 to between 5.5 and 6.0, and between 3.0 and 3.5 to between 1.0 and 1.5 is shown in Figure 4 where 8 bipolar membranes were used (Page 2163, Figure 4).

Response to arguments:

Applicant asserted that Quoc et al. do not mention or suggest any normality values and thus each and every element of the claimed invention is not anticipated by Quoc et al. The Examiner cannot agree. It is simple to convert the molarity to normality based on the valence. In

Art Unit: 1616

this case the Examiner calculates 0.019 N K^+ , 0.01 N Ca^{++} and 0.002 N Mg^{++} for a total cation concentration of 0.031 N, which is in the instantly claimed range. Please correct the Examiner if he is in error. Since it appears that Quoc et al. teach each and every limitation, then the Examiner maintains the rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-7 remain/are rejected under 35 U.S.C. 103(a) as being unpatentable over Quoc et al. (J. Agric. Food Chem. 2000, 48, 2160-2166) in view of Hatzidimitriou (US 4,936,962).

The reference of Quoc et al. is discussed in detail above and that discussion is hereby incorporated by reference. Quoc et al. teach methods wherein the electrodialed composition has: Cl^- 580 mg/L (0.016 M) and malic acid 7.6 g/L (0.05 M) and no free chlorine but the pH is acidic.

Quoc et al. do not expressly disclose a method wherein the electrodialed composition has a total anion concentration of 0.5 N or less, individual anion concentration of 0.3 N or less, a free chlorine content of 2 ppm or less and a pH of 8.0 or greater or the limitation of an electrodialed composition that has a total anion concentration of 0.1 N or less and individual anion concentrations of 0.04 N or less.

Hatzidimitriu teaches a process for increasing or decreasing the acidity of an aqueous flowable fluid, such as fruit juices, by electrodialysis in a cell containing a bipolar membrane between ion selective membranes (Abstract; column 2, lines 46-50; column 3, lines 49-67; Figure 3 and claims 1-6, for example).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to decrease the acidity to a pH of 8.0 or greater in the method of Quoc et al. and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because Hatzidimitriu teach that the taste of products can be improved, the viscosity can be modified, the color and protein stability can be enhanced and microbial spoilage can be controlled (Column 1, lines 12-16). It is deemed within the purview of one of ordinary skill in the art to select the proper pH range to maximize these desirable characteristics in any given solution.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the combined teachings of the cited references.

Response to arguments:

Applicant asserted that Quoc et al. do not mention or suggest any normality values and this deficiency is not remedied by the reference of Hatzidimitriu. The Examiner cannot agree. As

stated above, the Quoc et al. provides enough information to calculate the normality of the total anion or total cation concentration. Adjustment of pH to suit taste or other factors is provided by the reference of Hatzidimitriou. The Examiner maintains the rejection.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

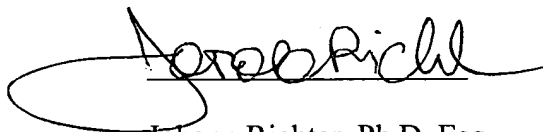
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernst V. Arnold whose telephone number is 571-272-8509. The examiner can normally be reached on M-F (6:15 am-3:45 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ernst Arnold
Patent Examiner
Technology Center 1600
Art Unit 1616

A handwritten signature in black ink, appearing to read "Johann Richter", written over a horizontal line.

Johann Richter, Ph.D. Esq.
Supervisory Patent Examiner
Technology Center 1600